Illinois College Tree Care Plan

Mission Statement

Illinois College is dedicated to caring for campus aesthetics and supporting a learning environment with a diverse landscape. Through careful planning and proper maintenance, the trees of Illinois College hold a secure future. Specifically, through this plan, Illinois College commits to:

- Maintain a diverse landscape with a wide range of tree species, including many natives
- Exemplify varied habitats for enjoyment and study on campus
- Maintain the historic character of the campus through its historic and significant trees
- Continue to care for and maintain all campus trees so that future generations will be able to study and enjoy their benefits

Responsible Authorities

A Landscape Committee is responsible for recommending the best methods for maintaining and improving campus garden areas, trees, and landscape plants. Additionally, a sub-committee which incorporates student input, the Campus Tree Advisory Committee, ensures that special interests relating specifically to trees are addressed. The Illinois College Landscape Department maintains all campus trees using general pruning, mulching, watering, and pest control. Certified arborist Alana McKean advises the landscape crew in this care. Additionally, larger scale tree trimming and additional care such as adding lightning protection and cabling are provided by certified arborist Sam Tidball.

Tree Care Policies

All parties involved in campus tree care will follow International Society of Arboriculture (ISA) standards and the American National Standards Institute's (ANSI) safety standards. Best Management Practices will be implemented to ensure plant requirements are met and trees are being cared for in the most appropriate manners recommended.

1) Planting – The American Nursery & Landscape Association standards (ANSI Z60.1 *American Standard for Nursery Stock*) will be followed for planting and transplanting trees on campus.

   a) Plant Selection – Plants will be chosen based upon expanding current diversity and adding desirable species suggested by the Biology Department and/or the Landscape Committee. Plants may be chosen based on attributes including showy flowers, interesting foliage, seasonal color, or attractive fruit or bark, all with the goal of adding diversity to the college's collections. Plants will be examined for pest issues and general health, either before purchase or before planting, if a contractor's services are utilized. Consideration of a tree's specific light, water, soil, and growing space requirements will be given when choosing plant selections for a specific site.

   b) Site Preparation – Site conditions will be taken into consideration when choosing a tree for a specific site, including adjacent buildings and planting areas, intended use of the site, intended function of the plant, plans for future development, irrigation, growth rate, pest resistance, and maintenance. Sod will be scraped from planting areas prior to digging. The planting hole will be no deeper than the rootball (from the bottom of the rootball to the trunk flare). Planting hole width should be at least twice the diameter of the rootball at its largest diameter. Top soil will be placed in a separate pile from lower layers, to be incorporated into the backfill.

   c) Tree Planting – The planting hole should be at least twice the width of the root ball at the soil surface, with rough, broken sides. The hole should never be deeper than the root ball. The top of the root ball should be even with or slightly higher than the surrounding soil grade at planting. To prevent the root ball from settling and becoming planted too deeply, soft fill should not be added to the bottom of the hole. The tree shall be placed with its main leader as close to plumb as possible if the species has an upright growth form. Top soil previously removed and mixed in with additional lower layers will be used to backfill hole. Soil amendments such as mushroom compost may not be added to the planting hole, but may be incorporated into the entire planting area if the soil has high clay content or is nutrient poor. The trunk flare must remain at or slightly above grade, and can be adjusted by pushing additional backfill soil below the rootball if this requirement is not met. The exposed rootball and surrounding soil should be covered with two to four inches of mulch, leaving a clearance of at least two inches from the trunk to prevent soil fungi and bacteria from attacking the trunk. Refer to Appendix B Diagrams taken from the NRCS: *Illinois Urban Manual*. Structural support including stakes or guy cables may be installed for up to one growing season to stabilize new trees if necessary.

   d) Transplanting – Planning will generally prevent transplanting from being a necessary procedure on campus. However, in the event of unforeseen circumstances, all measures will be taken to successfully move a tree to a new location. When possible, the tree will be dug during the dormant season (either fall or early spring), and in no case will

transplanting be done during active foliage growth periods in late spring or early summer. The rootball shall be a minimum of 10 inches diameter per inch of trunk diameter measured at 12 inches above root crown. Root pruning may be implemented prior to the previous growing season to improve chances of survival and decrease the establishment period. Wiring, drum lacing, and/or burlap may be used to keep the rootball intact. Once the rootball is removed, normal planting procedures may be used. Trees also may be transplanted using mechanical transplanting machines, using proper techniques to assure adequate rootball size, proper placement (plumb and at the correct height), and firm contact between the rootball and surrounding soil.

2) Watering – All newly planted trees will be watered regularly, in the absence of rain events, for the first whole growing season until dormancy. If the next year is a drought year, supplemental watering will be provided. Large trees may require additional watering for one year per inch of trunk diameter. This should provide sufficient time for establishment of a deep root system capable of supporting a young tree. Each zone of the campus will be evaluated regularly to ensure that proper water management practices are in place. All trees will be mulched to reduce water evaporation in the root zone and to provide favorable temperatures and biological activity for root development.

3) Landscaping - All beds will be mulched and edged. Additionally, newly planted trees will have a ring of mulch which is 2-4" deep, remaining at least two inches from the trunk flare. Additional mulch will be added annually to maintain a weed-free zone and aid in moisture and temperature management under the tree crown, extending as far from the tree base toward the canopy outline as practical.

4) Pest Management – Any pest problem will be treated as necessary. Integrated Pest Management practices will be used to treat and/or prevent infestations of harmful insects, fungi, and bacteria. Cultural practices will be implemented which promote healthy trees. When decline or pest issues are observed, a certified arborist or plant pathologist will diagnose the disorder and determine the most appropriate treatment. Symptoms and signs will be examined to determine the cause of tree problems. Impending issues, including the anticipated arrival of the Emerald Ash Borer (EAB), will be considered. Measures may be taken to prevent destruction when deemed reasonable (*e.g.*, Imidacloprid treatments for ash trees on campus to prevent EAB infestation).

   A six step procedure will be used to diagnose a tree problem, including:
   - Identifying the tree species
   - Observing patterns of abnormality
   - Examining the site
   - Noting foliage characteristics
   - Examining trunk and branches
   - Examining roots and root collar

5) Fertilization – Currently, there is no active fertilization program on campus. However, if serious nutrient deficiencies are noticed by a certified arborist or soil scientist, necessary treatments will be provided to correct these issues. Depending on the tree growth stage and deficiency symptoms, complete fertilizers with a full range of macronutrients and micronutrients or blends targeted to the deficiency may be used in either organic or inorganic form. Surface application through either granular or liquid application will be applied at rates indicated on the product label for each tree species.

6) Pruning – The International Society of Arboriculture (ISA) standards, as described in the "*Best Management Practices: Tree Pruning*" ISA publication, will be followed for all tree pruning on campus.

   a) Young Trees – All young trees will be pruned at least once each year to prevent poor structural growth which may be dangerous as the tree matures. Defects may be removed, single dominant leaders can be established, and branches can be well spaced along the trunk. A five step process will be followed to train a young tree, including:

- Removing broken, dead, damaged, and dying branches
- Establishing a dominant leader (where appropriate)
- Selecting and maintaining the lowest permanent branch
- Selecting and establishing scaffold branches
- Subordinating temporary branches

   This training process will be spread out over many years until tree maturity is reached. If major damage or death occurs within first year, the tree will be replaced by the nursery or contractor.

   b) Mature Trees – Mature trees will be maintained for safety and aesthetics. Factors including site, time of year, species, size, growth habit, vitality, and maturity of tree will be considered when pruning mature trees. Pruning will be done as follows:

      i. Crown Cleaning – This is the most common type of mature-tree pruning used on the Illinois College campus. Dead or dying, diseased, and other faulty branches will be removed. Large branches which have split or broken will be removed.

      ii. Crown Thinning – This technique will rarely be used. However, if a new planting is a high light-requiring species, and an adjacent tree may be thinned for the benefit of both trees, this technique may be implemented. When laterals are thinned from a limb, inner laterals should be well spaced to prevent lion tailing, which displaces foliar weight to the ends of branches and leaves limbs more prone to breakage.

      iii. Topping and heading back are prohibited pruning practices. These practices may result in tree starvation, shock, insect and disease infestation, weak limbs, rapid

undesirable growth, tree death, aesthetically unpleasing trees and large costs for replacement or correcting the damage.

iv. Maintenance pruning will be performed as necessary and at a minimum of once every five years.

c) General

i. Pruning cuts will be just outside of the branch collar and will not damage the branch bark ridge

ii. Pruning will be performed for tree and human safety, tree health, and aesthetics

iii. Pruning shall have a planned outcome (*e.g.*, structural improvement, removal of damaged tissue, aesthetic improvement)

7) Removal – Any tree considered for removal must be inspected by a qualified certified arborist using the Tree Rating system (Appendix A). If the tree has historic or other special significance and measures may be taken to save it, this will be assessed through the committee and reasonable attempts will be made to preserve the tree. Generally, trees will only be removed when they are significantly damaged, aesthetically detracting from the landscape, or posing a public safety risk.

8) Recommended and Prohibited Species – Biology professor Larry Zettler has provided a list of desired species. These, along with others suggested by the landscape committee, will be given top priority in order to improve the diversity and aesthetics of the campus collections. Biological diversity (in terms of taxonomy, ecology, and anatomy) will be given high priority in adding new plantings to the campus. No species which have been identified as noxious or invasive will be planted on campus.

9) Catastrophic Events – In emergency events including but not limited to fires, tornadoes, ice/snow storms, and floods, necessary procedures may be executed for safety, including tree removal (if badly damaged, uprooted, or otherwise irreparably disturbed) without the required Tree Rating system inspection. This procedure is intended only for exceptional cases and will not be widely used. Priority will be placed on removing debris from buildings, streets, sidewalks, and other pathways, and then on recovery of salvageable trees by maintenance pruning.

Protection and Preservation Policies and Procedures

Measures will be taken to preserve all historic and significant campus trees where possible. Additionally, all campus trees will be protected from planned construction, pathway alteration, and general use when possible.

1) Structural reinforcement - Necessary structural reinforcement and protection systems will be installed when possible and practical. Dynamic or static structural cabling, as appropriate, and lightning protection may be needed for some trees. For example, the Sturtevant Oak has been cabled and lightning protection has been installed. Plans are in order for additional root zone protection.

2) Construction - New construction plans will take into consideration existing trees on proposed building sites. If trees are of movable size with pre-existing campus equipment (including Starhill Forest Arboretum tree spades), trees will be relocated. If trees are beyond this size limitation, alternatives will be considered, including design alteration and location adjustment for the proposed building. If trees in question are not of historic or other special significance and are of poor health or quality, or are undesirable species, they may be removed to allow construction. Construction contractors will be required to use all available protective measures for existing trees, including limiting pathways for large vehicle traffic and restricting material stockpiling, to prevent compaction in root zones and prevent erosion.

Goals and Targets

1) Diversity – The campus will maintain and/or add to its current number of species present, and make attempts to provide species with diverse morphological features.

2) Native Species – New plantings will focus on incorporating a high percentage of native species. Non-natives and cultivars will be selected in attempts to add botanical diversity for educational purposes or to solve care issues such as pest resistance.

3) Habitats – The campus will create diverse biological habitat settings for demonstration purposes. For example, Parker Hall has a small established rain garden. Plans are in order to expand this area and to create plantings around the building which demonstrate xeric, wetland, prairie, and other native habitats.

4) Historic Character – Illinois College is the state’s oldest college. In demonstrating our historic character, trees which have significant historic significance will be considered top priority in maintenance and planning.

5) Digital Tree Inventory – All campus trees are being mapped. Additionally, the college's Starhill Forest Arboretum has been mapped. We are managing all of this information using a GIS-based database/mapping system. Some of this information will be made accessible via the internet for public viewing.

Additional Green Initiatives

Illinois College is committed to "being green." A few of our commitments to the green movement include a recently built LEED silver-certified residence hall, campus-wide recycling, a commitment to reduce greenhouse gas emissions through the American College & University Presidents' Climate Commitment, a continuing campus-wide tree inventory, and the addition via trust agreement of Illinois College's own arboretum, Starhill Forest.

Tree Damage Assessment

A Tree Rating System (Appendix A) will be used to determine the status of a tree which has been damaged or is in consideration of removal. If the tree receives a rating of 3 or higher, necessary measures to correct damage will be taken. Ratings of 1 and 2 will result in tree removal and replacement, using the same species if possible and desirable.

Prohibited Practices

1) No known invasive exotic species will be planted on the campus or any property owned by Illinois College. These include but are not limited to Japanese/Korean Honeysuckle (*Lonicera* spp.), Autumn Olive (*Elaeagnus umbellata*), Russian Olive (*Elaeagnus angustifolia*), Common Buckthorn (*Rhamnus cathartica*), Callery pear (*Pyrus calleryana*), Amur maple (*Acer ginnala*), multiflora rose (*Rosa multiflora*), and Tree of Heaven (*Ailanthus altissima*). Additionally, when found on campus, these trees or shrubs will be removed as soon as possible[1].

2) No tree will be removed without examination using the tree damage assessment except in emergency situations, such as a natural disaster with major damage to multiple trees.

3) Topping and heading back are prohibited pruning practices which result in weak and aesthetically unpleasing trees.

Definitions

Certified Arborist – Individual certified through the International Society of Arboriculture having comprehensive knowledge of the maintenance and care of trees.

Exotic Invasive – Any species which is able to establish and reproduce rapidly in a new area outside of its origin and which displaces native species from their habitat.

[1] Removal of Tree of Heaven must be done with caution. Allergic reactions, including hayfever, headaches and nausea (Mitchell and Rook, 1979) and vesicular eruptions (Woods and Calnan, 1976) have been noted upon exposure to leaves and sap.

LEED Silver Certified – Meets standards appointed by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™. These standards include specifications for site design, environmental quality, and energy consumption. The LEED system is a voluntary consensus-based national standard for developing high-performance sustainable buildings.

Lion Tailing – A thinning practice which removes an excessive number of inner laterals and foliage from a branch. This process results in poor taper development, disproportionately heavy peripheral wind/ice loading, and weak branch structure.

Mature Trees – Trees which are at least 20 years old and/or 6" in diameter.

Young Trees – Trees which are less than 20 years old and/or less than 6" in diameter.

Communication Strategy

The Landscape Committee and its advisory sub-committee, the Campus Tree Advisory Committee, will always be consulted on serious decisions concerning campus trees. When deemed necessary by the committee, the campus community will be notified whenever significant removals and other projects affecting campus trees are completed.

The landscape crew, any temporary employee, student worker, and any contractor will receive a copy of this Tree Care Plan. Any person working with *Ailanthus altissima* or other species that might impose adverse reactions (e.g., *Platanus, Taxus, Styphnolobium,* and *Toxicodendron* spp.) will be warned of the potential toxicity. Any work performed outside of the scope of this document, or against these standards, may be penalized for improper practices. This can include but is not limited to financial retribution, loss of contract, or loss of employment with Illinois College.

References

American National Standards Institute. *American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning)* (A300, Part 1). ANSI, New York, NY.

American National Standards Institute. *American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Supplemental Support Systems)* (A300, Part 3). ANSI, New York, NY.

American National Standards Institute. *American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Lightning Protection Systems)* (A300, Part 4). ANSI, New York, NY.

Gilman, E.F. and S.J. Lilly. 2002. *Best Management Practices: Tree Pruning*. International Society of Arboriculture, Champaign, IL.

Lilly, S. J. 2001. *Arborists' Certification Study Guide*. International Society of Arboriculture, Champaign, IL.

Mitchell, J.C. and Rook, A. 1979. Botanical dermatology. Greenglass Ltd., Vancouver.

USDA Natural Resource Conservation Service. 1994. *Illinois Urban Manual: Planting Procedure for Balled and Burlapped or Container Grown Trees and Shrubs.* Standard DWG: IL-685.

Woods, B. and Calnan, C.D. 1976. Toxic woods. British Journal of Dermatology. 95(13): 1–97.

Appendix A

Tree Rating System

1. Tree is dead or nearly dead, or constitutes a significant hazard to persons or structures. Tree should be removed immediately

2. Tree is partially dead or dying, has a fatal disease, or has extensive damage that cannot be corrected.
   Tree should be removed in the near future.

3. Tree is acceptable but has damage, injury, manageable disease, or large dead limbs.

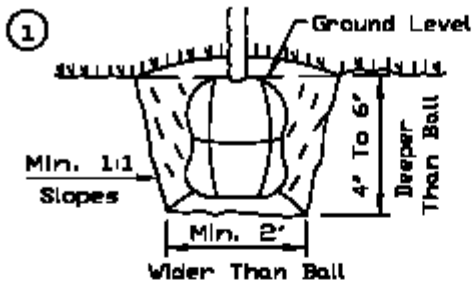
4. Tree is in good condition but may have slight injury or dead limbs.

5. Tree is in excellent condition with few or no physical problems.

Appendix B

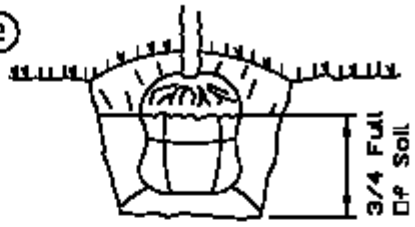
PLANTING PROCEDURE FOR BALLED AND BURLAPPED OR CONTAINER GROWN TREES AND SHRUBS

1



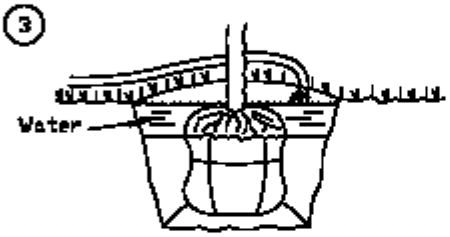
Add enough tamped soil in the bottom of the hole to set the ball at or slightly higher than the original planting depth.

2



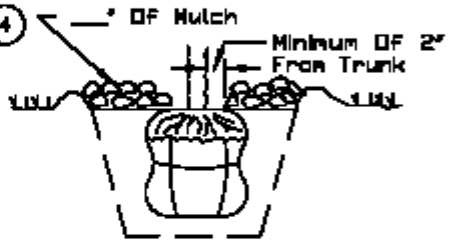
Fill the hole 3/4 Full of tamped soil then remove all exposed burlap and twine using a sharp utility knife.

3



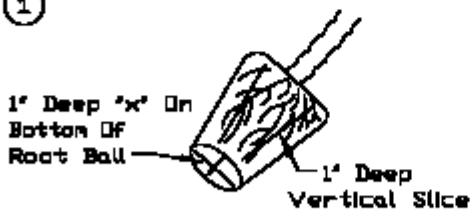
Fill the remaining 1/4 of the hole with water to remove air pockets and settle the soil. Finish filling the hole with soil after all the water has drained.

4



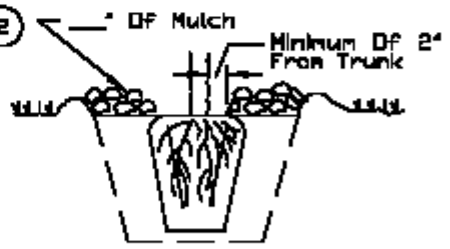
Unless soil is poorly drained, mound soil around edges of hole 4" to 6" high. Add a minimum of 4" of approved mulching material. Keep mulch about 2" from tree trunk.

1



Cut the circling roots of container grown trees with a sharp utility knife. Make 4 vertical slices on the sides and an "x" on the bottom. All slices should be 1-inch in depth.

2



Plant container-grown trees using same steps as for B & B trees except that the plastic container should be completely removed.

REFERENCE
Project
Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

NRCS
Natural Resources Conservation Service

STANDARD DWG. NO.
IL-685
SHEET 1 OF 1
DATE 8-22-94